

ABSTRACT

A wafer may be aligned with an imaging plate including an alignment grating with a pitch P . A pupil filter in the pupil plane of the optical system may be used so that the periodicity of the intensity of light from the alignment grating is less than P at the wafer plane. Thus, an alignment pattern on the wafer having a pitch smaller than the pitch of the alignment grating may be used. For example, the intensity periodicity at the wafer plane may be $P/2$. In an implementation, a pupil filter may be sized and positioned to block a zero-th order maximum of light transmitted through the alignment grating at the pupil plane. The pupil filter may be sized and positioned to allow first order maxima of the light to pass. The alignment system may be used with transmission or reflection optics.